

Name: Fjalele - Samuel - Eniola

MATRIC 18 (Eniola 1006)

Course ENGT 282 Q12

Dept. Petroleum Engineering

7) T_0 of the environment is 25°C

$$\frac{dT}{dt} = k(T - 25)$$

$$\int \frac{dT}{T - 25} = \int dt \cdot k$$

$$\ln(T - 25) = kt + C$$

$$T - 25 = e^{kt+C}$$

$$T - 25 = e^{kt} \cdot e^C$$

$$T - 25 = T_0 e^{kt}$$

$$T = T_0 e^{kt} + 25$$

$$A + 20^\circ\text{C} = 10^\circ\text{C}$$

$$10 = T_0 e^{0} + 25$$

$$\therefore 20 = -15e^{kt} + 25$$

dividing both side

$$20 - 25 = -15e^{kt}$$

$$|k| = 0.21972 \approx 0.2197$$

$$T = -15e^{-0.2197t}$$

$$= -0.1 = -15e^{-0.2197t}$$

$$\frac{-0.1}{-15} = e^{-0.2197t}$$

dividing both side

$$t = \frac{5000}{0.2197}$$

$$t = 22.80 \text{ mins}$$



Charles
1 minute ago



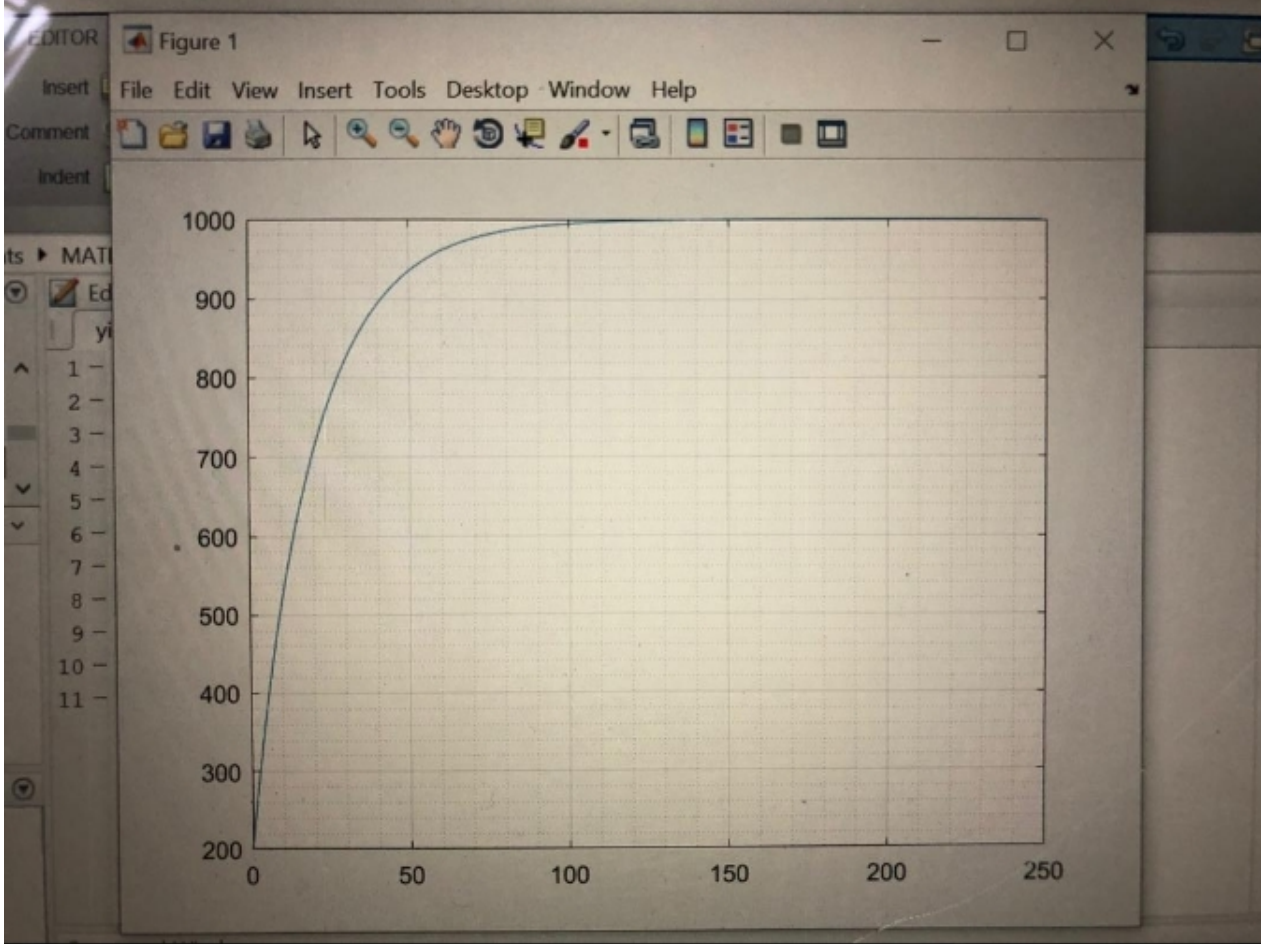
The screenshot shows the MATLAB environment. The Editor window displays a script named 'yimaquiz2.m' with the following code:

```
commandwindow
clear
clc
close all
format short g
mdata=xlread('onlinequizdata','fluiddata')
x=mdata(1:2:250,1)
y=mdata(1:2:250,2)
plot(x,y)
grid on
grid minor
```

The Command Window shows the execution progress with line numbers 88, 90, 92, 94, 96, 98, 100, and 102. The status bar at the bottom indicates 'Ln 11 Col 11'.



Charles
1 minute ago



Type a message

